

REMARKS

This submission accompanies a Request for Continued Examination filed concurrently herewith. Claim 1-7 and 9-87 are pending in the application. Claims 7 and 85 have been amended to correct obvious typographical errors. The amendments to claims 7 and 85 are non-narrowing, and clarify the obviously intended meaning of the claims as originally drafted.

Claims 8-10, 14 and 20-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants note that the arguments presented in the Amendment filed on October 16, 2003 are not addressed in the Advisory Action mailed October 31, 2003. Accordingly, in view of the arguments presented on October 16, 2003, Applicants believe that claims 8-10, 14 and 20-23 comply with all requirements of 35 U.S.C. § 112, second paragraph.

Claims 1-3, 5-15 and 24-27 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over United States patent number 6,140,670 to Chang (Chang) in view of United States patent number 5,942,775 to Yiannoulos (Yiannoulos). Applicants respectfully traverse the rejection.

Claim 1 recites:

A diode, said diode comprising: an isolation region formed in a substrate; a first doped active layer of a first conductivity type formed in said substrate, wherein said doped active layer is spaced apart from said isolation region; a second doped active layer of a second conductivity type in contact with said first doped active layer, the contact of said first and second active layers forming a p-n junction; and a third doped region formed in said second doped active layer beneath said isolation region. (Emphasis added).

It is acknowledged in the Office Action that "Chang lacks a... first doped region of the second conductivity type under the isolation region 204." The Office Action proposes to combine Chang with Yiannoulos in order to overcome this deficiency. As ground for this combination, the Office Action offers the statement in Yiannoulos that "[i]t should be noted that the other n-tub or p-tub regions 106 are not necessarily required for the present invention, but rather are material only with respect to overall CMOS technology in the context of a specific example of a layout." Applicants respectfully submit that the mere statement that the tub regions of Yiannoulos are found in CMOS technology does not, without more, support the proposed inclusion of such tubs in combination with the Chang reference. CMOS technology includes many many aspects that one would not combine in a particular device absent a motivation. Accordingly, the Office Action's conclusions of obviousness appear to be based upon impermissible hindsight by using the claims of the present invention as a road map to improperly modify the cited references.

The Courts have noted the ever present danger of using an Applicant's disclosure as a road map for rejecting patent claims based upon obviousness grounds. The Federal Circuit in In re Dembiczak, 175 F.3d 994, 1000 (Fed. Cir. 1999) stated "the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is a rigorous application of the requirement for showing [i.e., actual evidence] of the teaching or motivation to combine prior art references." The Courts have increasingly emphasized the need for evidence of the motivation to combine/modify as well as evidence for reasons cited by the examiner for combining/modifying the prior art in rejecting claims based upon obviousness grounds. The Office Action and Advisory Action do not provide such evidence. Accordingly, the rejection of claim 1 based on a combination of Chang and Yiannoulos is improper based upon the foregoing reasons and other reasons.

Even if, *arguendo*, the Chang and Yiannoulos references could be properly combined, they still do not teach or suggest every element of the invention as claimed. Claim 1 recites "a substrate; a first doped active layer... a second doped active layer...; and a third doped region formed in said second doped active layer." The Yiannoulos reference expressly specifies that "the p-tub substrate region 133 adjoins other n-tub or p-tub regions 106 of the substrate 102," (emphasis added). Column 4, lines 38-40; and figures 1-6. Accordingly, the substrate 102 is clearly distinct from the tub regions 106 and regions 106 are in the substrate, not in the tub regions. The Advisory Action of October 31, 2003 asserts that "Chang specifies (in Col. 3, lines 8-10) that substrate 200 can be the P-well of an N-type substrate, and in such a case, the P-well "200" would be equivalent to the second doped active layer of Claim 1." If region 200 of Chang is interpreted as being a substrate, and additional doped regions are formed therein as proposed in the Office Action, then there is no teaching or suggestion of "a third doped region formed in said second doped active layer beneath said isolation region" as claimed. If, in the alternative, region 200 of Chang is interpreted as being a "P-well of an N-type substrate" there's nothing to teach or suggest the formation of additional regions, as 106 of Yiannoulos, since Yiannoulos clearly shows these regions in the substrate, outside of the other doped wells. In either case, the combination fails to teach all element recited in the subject claim including "a substrate; a first doped active layer... a second doped active layer...; and a third doped region formed in said second doped active layer."

For these and other reasons, the rejection of claim 1 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos should be withdrawn, and claim 1 should be allowed.

Claims 2-3, 5-15 and 24-27 each depend, directly or indirectly, from claim 1 and incorporate every limitation thereof. Accordingly claims 2-3, 5-15 and 24-27 are also in immediate condition for allowance.

Claims 4, 16-23 and 28-87 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Chang and Yiannoulos in further view of United States patent No. 6,150,676 to Sasaki (Sasaki). In the Office Action it is acknowledged that Chang and Yiannoulos do not teach or suggest the claim 4 limitations that "said isolation region is a field oxide region formed by the Shallow Trench Isolation process," among others. The Office Action proposes to combine Chang and Yiannoulos with Sasaki in order to overcome these deficiencies.

The arguments presented in this regard in the Amendment filed on October 16, 2003 have not been addressed in the Advisory Action. In addition, Applicants note that claim 28 includes patentable combinations of limitations including "an isolation region formed in a substrate; a first doped active layer... formed in said substrate... wherein said first doped active layer is spaced apart from said isolation region; a second doped active layer... formed within said first doped active layer, wherein said second doped active layer is doped to a higher dopant dose than said first doped active layer, wherein said first active layer and said substrate form a p-n junction; and a third doped region proximate to a lower boundary of said isolation region." The Office Action acknowledges that neither Chang, Yiannoulos nor Sasaki alone teaches every element claimed in the combination and, as discussed above, no adequate motivation or suggestion is provided that would lead one of skill in the art to combine references. Accordingly, the rejection of claim 28 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos should be withdrawn, and claim 28 should be allowed.

Claims 29-49 each depend, directly or indirectly, from claim 28 and incorporate every limitation thereof. Accordingly claims 29-49 are also in immediate condition for allowance.

Claim 50 includes each of the previously discussed limitations of claim 1. Accordingly, claim 50 is allowable for at least the reasons cited above in relation to claim 1, since it has been shown that Chang and Yiannoulos may not properly be combined. Therefore, the rejection of claim 50 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos and Sasaki should be withdrawn.

Claims 51-66 each depend, directly or indirectly, from claim 50 and include every limitation thereof. Accordingly, the rejections of claims 51-56 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos and Sasaki should be withdrawn for at least the reasons given above in relation to claim 50.

Claim 67 includes at least each of the previously discussed limitations of claim 28. Accordingly, claim 67 is allowable for at least the reasons cited above in relation to claim 28 and the rejection of claim 67 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos and Sasaki should be withdrawn.

Claims 68-87 each depend, directly or indirectly, from claim 57 and include every limitation thereof. Accordingly, the rejections of claims 68-87 under 35 U.S.C. § 103 (a) over Chang in view of Yiannoulos and Sasaki should be withdrawn for at least the reasons given above in relation to claim 67.

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In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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